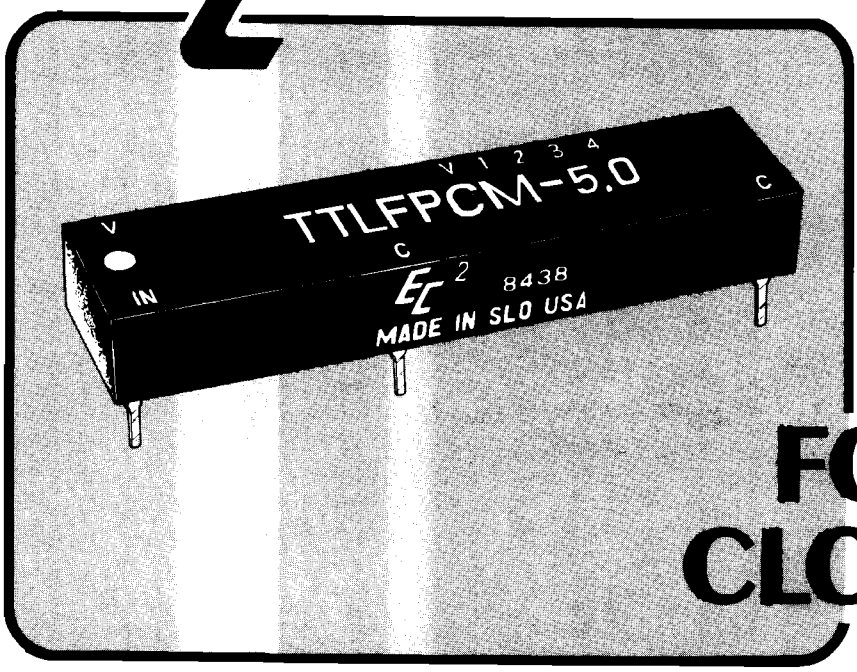
EC²



low profile

T²L COMPATIBLE FOUR-PHASE CLOCK MODULE

- T²L input and outputs
- Output wavetrain synchronized with input square wave
- 32-pin DIP package (.250 high)
- Available in frequencies from 200 Khz to 12 Mhz
- 10 T²L fan-out capacity per phase

design notes

The "DIP Series" Four-Phase Clock Modules developed by Engineered Components Company have been designed to provide precise T²L level four-phase, square-wave outputs at frequencies from 200 Khz to 12 Mhz; they are synchronized by single-phase T²L level inputs at the selected frequency. The modules will accept inputs with duty cycle from 25% high/75% low to 75% high/25% low with minimal effect on output duty cycle. Module input is a two fan-in Schottky T²L; all outputs are toggle-type Schottky T²L and capable of driving 10 T²L Schottky loads per phase.

The TTLFPCM is offered in twenty-four (24) standard clock frequencies from 200 Khz to 12 Mhz. When tested under the "Test Conditions" shown, output frequency is maintained to within ±.005% of input frequency; output phase spacing is maintained to an accuracy of ±5°. Output phase times are referenced to the +1.5V level on the rising edge.

These modules are of hybrid construction utilizing the proven technologies of active integrated circuitry and of passive networks utilizing capacitive, inductive and resistive elements. The ICs utilized in these modules are burned-in to Level B of MIL-STD-883 to ensure a high MTBF. The MTBF on these modules, when calculated per MIL-HDBK-217 for a 50°C ground fixed environment is in excess of 1.5 million hours.

These "DIP Series" modules are packaged in a 32-pin DIP housing, molded of flame-proof Diallyl Phthalate per MIL-M-14, Type SDG-F, and are fully encapsulated in epoxy resin. Flat metal leads meet the solderability requirements of MIL-STD-202, Method 208. Leads provide positive standoff from the printed circuit board to permit solder-fillet formation and flush cleaning of solderflux residues for improved reliability.

EC² **engineered components company**

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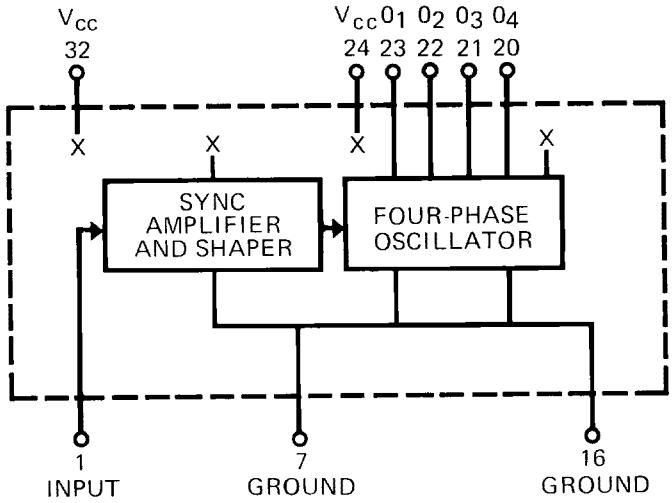
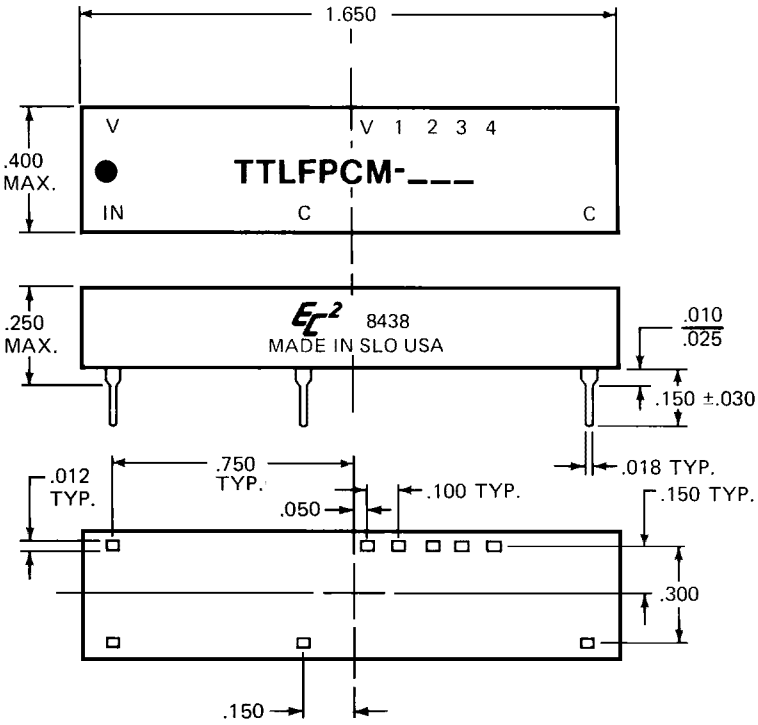
DESIGN NOTES (continued)

Marking consists of manufacturer's name, logo (EC^2), part number, terminal identification and date code of manufacture. All marking is applied by silk screen process using white epoxy paint in accordance with MIL-STD-130, to meet the permanency of identification required by MIL-STD-202, Method 215.

BLOCK DIAGRAM IS SHOWN BELOW



MECHANICAL DETAIL IS SHOWN BELOW



TEST CONDITIONS

1. All measurements are made at 25°C.
2. V_{CC} supply voltage is maintained at 5.0V DC.
3. All units are tested using a Schottky toggle-type gate as a driving source and with all outputs unloaded.
4. The square-wave input signal is a single-phase T^2L with 50% duty cycle.

OPERATING SPECIFICATIONS

* V_{CC} supply voltage: . . . . . 4.75 to 5.25V DC
V_{CC} supply current: . . . . . 140ma typical

Logic 1 input:
Voltage . . . . . 2V min.; 5.5V max.
Current . . . . . 2.4V = 100ua max.
5.5V = 2ma max.

Logic 0 input:
Voltage . . . . . .8V max.
Current . . . . . −4ma max.

Logic 1 Voltage out: . . . . . 2.4V min.
Logic 0 Voltage out: . . . . . .4V max.
Operating temperature range: . . . . . 0 to 70°C.
Storage temperature: . . . . . −55 to +125°C.

* Phase error increases approximately 2° for a respective increase or decrease of 5% in supply voltage.

PART NUMBER TABLE

Part Number	Operating Frequency	Part Number	Operating Frequency
TTLFPCM-0.2	200 Khz	TTLFPCM-3.0	3.0 Mhz
TTLFPCM-0.3	300 Khz	TTLFPCM-3.5	3.5 Mhz
TTLFPCM-0.4	400 Khz	TTLFPCM-4.0	4.0 Mhz
TTLFPCM-0.5	500 Khz	TTLFPCM-4.5	4.5 Mhz
TTLFPCM-0.6	600 Khz	TTLFPCM-5.0	5.0 Mhz
TTLFPCM-0.7	700 Khz	TTLFPCM-6.0	6.0 Mhz
TTLFPCM-0.8	800 Khz	TTLFPCM-7.0	7.0 Mhz
TTLFPCM-0.9	900 Khz	TTLFPCM-8.0	8.0 Mhz
TTLFPCM-1.0	1.0 Mhz	TTLFPCM-9.0	9.0 Mhz
TTLFPCM-1.5	1.5 Mhz	TTLFPCM-10.0	10.0 Mhz
TTLFPCM-2.0	2.0 Mhz	TTLFPCM-11.0	11.0 Mhz
TTLFPCM-2.5	2.5 Mhz	TTLFPCM-12.0	12.0 Mhz

Special modules can be readily manufactured to provide outputs with either 25% or 75% duty cycle, to improve accuracies or to provide customer specified frequencies for specific applications.